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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/821,074	04/08/2004	Colin Eberhardt	9345/91883	9215

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EXAMINER

FINEMAN, LEE A

ART UNIT PAPER NUMBER

2872

DATE MAILED: 03/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/821,074

Applicant(s)

EBERHARDT ET AL.

Examiner

Lee Fineman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION:

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 2-9 and 19-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 10-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 April 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1/3/06.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of Species I in the reply filed on 3 January 2006 is acknowledged.

Claims 2-9 and 19-21 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim.

### ***Priority***

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Drawings***

3. Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the laser confocal scanning microscope including an electronic control and imaging system (claims 1, 10-18); a wavelength selection means (claims 10 and 12); a intensity modulation means (claims 11 and 13); and a optical light guide (claims 17-18) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

5. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Specification*

6. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The specification lacks wherein synchronization of the selected laser light beam wavelength is to a selected time point other than the flyback (claim 10); wherein synchronization of the intensity modulation or blanking of the laser light source beam is to a selected time point other than the flyback (claim 11); wherein said electronic control and

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imaging system is comprised of hard wired logic, a Digital Signal Processor, a microprocessor, a computer or a similar computational device (claim 14); wherein said laser light source includes , a tunable laser, and/or an array of lasers (claim 15); and wherein the light beams are coupled to the beam path by means of a rigid or flexible optical light guide/optical fiber (claims 17 and 18).

7. The disclosure is objected to because of the following informalities: Page 2, section [0006] includes references to "claim 1," "claim 2," and "claims 19 and 20." Using claim numbers in the specification is inappropriate and should be removed because reference to a general claim number could lead to confusion as the claim numbers or the scope of the claim may change.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1, 10-11 and 13-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Engelhardt et al., US 2002/0027709 A1 (henceforth Engelhardt '709).

Regarding claim 1, Engelhardt '709 disclose a laser confocal scanning microscope (fig. 1) comprising: means (1 and 2), including a laser light source (page 3, section [0045]), for emitting laser light beams at different wavelengths; a beam path (fig. 1) for directing said laser

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light beams from said laser light beam emitting means to an object stage (not shown) for supporting an object (11), said beam path including a first deflector (5) including an acousto-optical deflector for effecting line scanning (page 3, section [0032]), at least one objective (10) for focusing the laser light beams onto the object on said object stage, a second deflector (9) positioned between said acousto-optical deflector and said at least one objective (fig. 1) for effecting frame scanning (fig. 3), said second deflector and said at least one objective being positioned so that return light beams from the object follow the same beam path as the laser light beams focused onto the object up to and including the second deflector (fig. 1), at least one detector (12) positioned in the return light beam path downstream said second deflector for detecting the return light beams from the object (fig. 1), the object being adapted to be scanned by the laser light beams from the laser light beam emitting means (fig. 3) and measurements being adapted to be made with said at least one detector in order to obtain images of the object (page 3, sections [0047]-[0048]), and an electronic control and imaging system (13) adapted to control the laser light beam emitting means to emit laser light beams of different selected wavelengths and adapted to dynamically adjust drive parameters of said acousto-optical deflector in accordance with the selected wavelength of the laser light beams, to maintain alignment of the scan lines of the image at all wavelengths (page 3, section [0032]).

Regarding claims 10, Engelhardt '709 further disclose wherein said electronic control and imaging system is adapted to provide synchronization of the selected laser light beam wavelength to the flyback or other selected time point in the line scans by applying control signals to a wavelength selection means (5) mounted downstream of said laser light source such that the laser light beams passing through said wavelength selection means on their passage into

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or through the beam path are controlled such that only the selected wavelength is permitted to pass through the beam path (page 3, sections [0032]-[0033]);

Regarding claims 11 and 13, Engelhardt '709 further disclose wherein said electronic control and imaging system (13) is adapted to provide synchronization of the intensity modulation or blanking of the laser light source beam to the flyback or other selected time point in the line scans by applying control signals to an intensity modulation means (not shown) mounted downstream of said laser light source such that the laser light beams passing through said intensity modulation means on their passage into or through the beam path are controlled such that the intensity of the light beams can be modulated or blanked (page 3, section [0034]); wherein said intensity modulation means comprises an acousto-optical tunable filter (AOTF) and/or said acousto-optical deflector (AOTF, see page 3, section [0034]).

Regarding claim 14, Engelhardt '709 further disclose wherein said electronic control and imaging system is comprised of hard wired logic, a Digital Signal Processor, a microprocessor, a computer or a similar computational device (13, which is a computer).

Regarding claim 15, Engelhardt '709 further disclose wherein said laser light source includes a multi-line laser, a tunable laser, and/or an array of lasers emitting at various wavelengths and an optical configuration that provides collinear laser beams (page 3, section [0036]).

Regarding claim 16, Engelhardt '709 further disclose wherein said second deflector comprises a mirror galvanometer (page 3, section [0038]).

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 12, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Engelhardt '709 in view of Engelhardt et al., US 6,510,001 B1 (henceforth Engelhardt '001).

Regarding claims 17-18, Engelhardt '709 disclose the claimed invention except for wherein the light beams are coupled to the beam path by means of a rigid or flexible optical light guide; and wherein the optical light guide is an optical fiber. Engelhardt '001 teaches a confocal laser scanning microscope wherein the light beams are coupled to the beam path by means of a rigid or flexible optical light guide, which is an optical fiber (column 4, lines 5-7). It would have been obvious to one of ordinary skill in the art at the time the invention was made to add an optical fiber light guide as taught by Engelhardt '001 to the system of Engelhardt '709 to provide more flexibility in positioning the light source and therefore the size/footprint of the apparatus.

Regarding claim 12, Engelhardt '709 disclose the claimed invention except for wherein said wavelength selection means comprises an acousto-optical tunable filter (AOTF). Engelhardt '001 teach using additional AOTFs upstream or downstream in the system for further wavelength selection (column 4, lines 28-32). It would have been obvious to one of ordinary skill in the art at the time the invention was made to add an AOTF to the system of Engelhardt '709 as the wavelength selection means as taught by Engelhardt '001 to provide even more accurate wavelength control.



*Conclusion*

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Birk WO 03/012516 A1; Knebel, US 6,867,899 B2; and Knebel, US 2002/0196535 A1 disclose confocal laser scanning microscopes with acousto-optical elements. Birk, US 6,967,764 B2 is the English equivalent of WO 03/012516 A1

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lee Fineman whose telephone number is (571) 272-2313. The examiner can normally be reached on Monday - Friday 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



LAF  
March 17, 2006



**DREW A. DUNN**  
**SUPERVISORY PATENT EXAMINER**